

A-Max II

The Macintosh® emulator for your Amiga®

Update to
Version 2.0

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1.0 INTRODUCTION

ReadySoft, Inc. is pleased to announce the release of Version 2.0 of its A-Max Macintosh emulator. As a registered user of A-Max, you have been able to make use of the only Macintosh emulator for the Amiga. That emulation has just been made significantly more powerful.

Among its exciting new features A-Max II numbers the following:

- Support for Macintosh digitized sound;
- Support for the new display capabilities of Commodore's Enhanced Chip Set (ECS) and Workbench 2.0;
- Support for Memory Management Units on processor accelerators;
- Simplified AmigaDOS to A-Max File Transfer utilities;
- Support for A-Max partitions on Amiga hard disks and;
- Support for external SCSI input, storage and output devices.

This document includes details on all of these additions. It is meant to supplement your existing A-Max manual, not replace it. Be sure to read this entire update, as well as the **ReadMe** file on your distribution disk before attempting to use the new software.

The following outline describes the arrangement of this update:

Introduction: The section you are now reading.

A-Max Install: Describes the ReadySoft supplied utility for automatically copying A-Max files to your hard disk.

Preferences: Describes changes to the A-Max Preferences section of your version 1.0 manual. These changes include details about the new software configuration features.

Sound and Real Time Clock: Briefly notes these two enhancements to the A-Max II system.

Using A-Max with Hard Drives: Describes how to set up Amiga hard drive partitions for use as A-Max/Macintosh storage devices. Also, how to access external SCSI devices through the Amiga controller.

Software Compatibility: Updates existing documentation on compatibility issues and strategies for optimizing your Macintosh emulation.

File Transfer Utilities: Describes the new AmigaDOS to A-Max file transfer utility.

2.0 A-MAX INSTALL

As before, the AmigaDOS format **A-Max Startup** program and associated utilities for transferring files can be installed on your hard drive. The A-Max Startup disk is not copy-protected and includes an automatic hard disk installation program called **A-Max Install**. Simply click on the A-Max Install icon and you will be prompted to supply drive and directory names as destinations to receive the necessary A-Max files.

You may choose to manually copy the files over to your hard disk; nearly everything is contained within the A-Max drawer on the program disk. However, you should be sure to read the rest of this manual carefully — particularly the sections about using A-Max with partitions on your hard disk — to make sure you copy all of the necessary files.

Reminder to Amiga 1000 owners: If you wish to use your Kickstart RAM with A-Max, you must boot from a verbatim copy of your A-Max II release disk. This disk has a non-standard boot block that enables A-Max to take over the Kickstart RAM. Installing the A-Max II system on your hard disk will not allow the Kickstart RAM to be recovered.

3.0 PREFERENCES CHANGES

3.1 Display Options

A-Max II allows for the definition of a display or video mode that is different from the number of columns and rows that constitute a screen. In this way it is possible to create a workspace larger than your monitor's field of view. The Screen Modes setting will define the extent of your actual workspace; the Macintosh's Desktop. The Video Modes setting tells your Amiga hardware how to present the screen visually. In most cases, you will want to match the screen and video mode settings, but you may choose (if, for instance, excessive flicker is a problem) to set these variables independently.

3.2 Screen Modes

Clicking on the Screen Modes button cycles through the following procession of screen possibilities (sizes are in pixels or screen dots):

- (1) 512 x 342;
- (2) 640 x 400 (NTSC)
640 x 512 (PAL);

- (3) 672 x 460;
- (4) From Workbench.

The first size is the standard Macintosh screen size. The second is the standard Amiga Hi-res screen size (units equipped for European PAL video standards can display 640 x 512 pixels. The U.S. standard, NTSC, provides for 400 lines). The third setting is the maximum Hi-res overscan achievable by either NTSC or PAL systems.

The fourth setting uses the size selected from Workbench and recorded in your AmigaDOS preferences file. If you are using Workbench version 2.0 you can set these dimensions directly. If your Workbench version is 1.3 or earlier, you can use a program such as **MoreRows** to adjust the number of rows. In any case, the object, generally, is to maximize the number of displayable rows, thereby increasing your active workspace.

When using Workbench version 1.3 and earlier, the line count (number of rows) is always automatically doubled by enabling the **Interlace** mode (i.e.: The standard 200 line medium-resolution Workbench becomes 400 lines high). So, if you use **MoreRows** to select 230 lines, enabling interlace will produce a 460 line screen). It is important to note that the minimum number of rows required by A-Max II is 342 (anything less will be forced to 342).

3.3 Video Modes

Similar to the Screen Modes button, the Video Modes button cycles through the following range of choices:

- (1) Hi-res;
- (2) Hi-res Interlaced;
- (3) ECS Productivity;
- (4) ECS Productivity Interlaced;
- (5) A2024/Monterm.

Hi-res and **Hi-res Interlaced** refer to standard Amiga display modes. The ECS settings support a variety of new display modes provided by the combination of Commodore's Enhanced Chip Set and Workbench version 2.0. **A2024/Monterm** refers to a high resolution (1008 x 800) display achievable with special Commodore or third-party hardware.

If the number of rows specified by Screen Modes is greater than the number of rows selected in Video Modes, the screen will scroll whenever the mouse moves off the top or bottom of the displayed field. This method is consistent with the function found in Workbench version 2.0. Users familiar with A-Max

version 1.0 will note that the other screen scrolling methods used by that version have been disabled.

3.4 Screen Positioning

For all screen and video modes, except the Enhanced Chip Set (ECS) settings, A-Max II centers the screen by referring to the AmigaDOS preferences file.

If you need to center the screen on your monitor while using the ECS mode settings, you will have to separately adjust the X and Y coordinates. Clicking on the arrow above the coordinate reduces its value, while clicking on the arrow below the coordinate increases it.

3.5 Memory Options

No \$C00000 will use only memory located below address \$C00000 (this option will disable the second 512k of memory in A2000s and 1Mb A500s, making A-Max II more compatible with some applications). This functions essentially the same as the previous version, except that it now allows you to also specify a desired memory size using the User gadget. As before, any \$C00000 memory present in your system will still be included in the A-Max RAM disk.

User allows you to select the amount of memory to be used during Mac emulation. It now, however, displays both the amount of memory you dedicate to the Macintosh system and "RAM Disk = " followed by the amount of RAM that will be used as a RAM disk. The sum of these two figures is never larger than the total amount of memory in your machine and as you increase the size of memory available to the Mac system, the RAM disk figure will decrease.

MMU — If you have a 68020 accelerator board with a Memory Management Unit (MMU) or a 68030, which has a built-in MMU, you can select this option from the Preferences screen. When this feature is enabled, A-Max II will allow the MMU to remap your Amiga's memory into one contiguous block (the way the Macintosh likes it). Memory is mapped so that half of any 32-bit (non-CHIP) RAM is placed at the beginning of the system "heap," followed by 16 bit Fast RAM, then CHIP RAM and, finally, the remainder of the 32-bit memory. With this configuration, all the Macintosh System code and most applications will be able to run in the fastest memory your system has to offer. We have, in fact, timed the speed increase at up to five times the normal execution time. Of course, this option is only available to those Amigas equipped with an MMU.

4.0 SOUND

A-Max II now supports most digitized sounds. You don't have to do anything to enable this feature. The sound support can be tested by changing the system beep in the control panel. This option can be shut off by setting the volume to zero in the Control Panel. If applications go directly to the hardware to produce sounds, some may produce undesirable results while others will work fine.

5.0 REAL TIME CLOCK

A-Max version 1.0 supported only A500 and A2000 motherboard clocks. A-Max II gets its time signal from the System at startup, then uses the Amiga's internal timing circuitry to keep an accurate count. It, therefore, will support any existing third party clock. Before starting A-Max, verify that your system's date and time are accurate by using the AmigaDOS **Date** command.

6.0 USING A-MAX II WITH A HARD DRIVE

A-Max II will allow you to access hard disk drives in two ways: As standalone Macintosh formatted SCSI drives and as A-Max formatted partitions on existing Amiga hard drives. This provides the maximum of flexibility for mass storage options as well as providing support for other Macintosh SCSI devices (such as laser printers and scanners).

Users who can afford them may want to keep their Macintosh files and programs on separate SCSI drives that can be switched off while running AmigaDOS. Users with smaller budgets (or desktops) can optimize their resources by splitting their existing hard drives into AmigaDOS and A-Max partitions. Either way, the mechanism that lets A-Max II find and talk to these devices is the controller card.

Hard disk controller cards on the Amiga are supported by A-Max II through the use of software drivers that are written specifically for given cards. A different driver is required for each different controller. Some of these are supplied on the A-Max program disk in the **DEVS:** directory. ReadySoft has made an effort to provide the necessary technical details to the more popular hard drive controller manufacturers but due to unfortunate timing or a lack of interest on the parts of some manufacturers, not all hard drives are supported at this time. This doesn't mean that these controller cards can't or won't be supported in the future. If a driver for your card isn't included on the A-Max disk, contact your hard drive manufacturer and they may be able to send you a driver if they have developed one subsequent to the release of A-Max II.

6.1 AMHD — the A-Max Hard Disk Driver

To check if any given controller is supported, you must first determine the name of the device driver used by the hard drive card. This can be found in the `DEVS:Mountlist` file for any partition of any hard drive attached to the controller. As you scan down the entries in the device mountlist specification, you will see "Device = " followed by the name of the software driver (example: The GVP SCSI card uses `SCSIDEV.DEVICE`, so its mountlist would read "Device = `SCSIDEV.DEVICE`"). For A-Max II to support a card, there must exist a driver in the `DEVS:` directory with the same prefix and a suffix of `AMHD` (in our example, the GVP SCSI card would require a driver called `SCSIDEV.AMHD`).

If your hard drive controller uses **Rigid Disk Format** (all partitioning information is saved on the first blocks of the hard drive, itself) then you won't have a mountlist to consult. Try checking the documentation that came with your controller, or refer to the following list:

Some common controllers' device names are as follows:

Controller	device driver	A-Max II driver
A2090	hddisk.device	hddisk.amhd
A2091/A590	scsi.device	scsi.amhd
GVP	scsidev.device	scsidev.amhd

In addition, be sure to check the **ReadMe** file on your A-Max II distribution diskette for a listing of controllers and their devices that may have been added since this manual was prepared.

Once you have ascertained which `AMHD` device driver is required, you should copy it from the `DEVS:` directory of the A-Max disk to the `DEVS:` directory on your hard drive. If you use the **A-Max Install** program to automatically configure your system, it will copy all A-Max II hard disk drivers to the `DEVS:` directory on the hard drive.

Before A-Max II will recognize your hard drive, it will have to be re-partitioned and formatted. A-Max II will allow up to 8 A-Max partitions spread across up to 8 hard drives so long as they are all connected to the same controller (any number of AmigaDOS partitions may also exist on these hard drives). Any number of hard drive controllers may be installed in your Amiga and used by AmigaDOS but only one can be used by A-Max II.

6.2 Partitioning the Hard Drive

When you are partitioning your drive(s), most hard disk setup utilities will ask you to name the partitions as you create them. To denote a partition as an A-

Max partition, the name you give it must begin with `AMAX` (no spaces, no hyphen). Typically you might want to name your A-Max partitions `AMAX1`, `AMAX2`, etc., but you could also name them `AMAXWork`, `AMAXBackup` or anything else that begins with `AMAX` (note: the name you give it is only the designator used by your Amiga — you can call it anything you like when you initialize the partition under A-Max II).

If your partitioning software doesn't allow you to name your partitions (it may automatically name them `DH2:`, `DH3:`, etc.), you will have to edit the mountlist that the partitioning software creates (in the `DEVS:` directory). You will have to find the default names that the partitioning software created and replace them with names beginning with `AMAX` (as discussed above). Again, with **Rigid Disk Format** you won't have a mountlist so the only way to name your partitions is with the manufacturer's setup software itself.

Note that you cannot use the AmigaDOS **Assign** command (i.e.: `Assign AMAX1: DH2:`); the name must actually be recorded in the mountlist.

Once all partitions have been appropriately named, you must insure that they are mounted before you run A-Max II. Some hard drive controllers will automatically mount all partitions, in which case, you won't have to do anything. Other controllers will only mount the boot partition and leave it to you to mount any other partitions. If this is the case, you should add the appropriate mount commands to your startup-sequence (i.e.: `Mount AMAX1: <return>`, `Mount AMAX2: <return>`, etc.).

6.3 Initializing the A-Max Partitions

Now, you can run A-Max II.

When the Mac system takes over, it will find the new A-Max partitions on your hard disk, but it will be unable to recognize them as anything useful. A requester displaying an A-Max hard drive icon will appear, stating: "This is not a Macintosh disk: Do you want to initialize." You must click on **Initialize**. It will then report: "This process will erase all information on this disk." You must click on **Erase**. You will then be prompted for a name. Here is your chance to give the partition whatever name you like; it's the name you will see attached to the drive icon on your Macintosh desktop. After supplying a name for the drive, the requester will then say "Creating directory." This could take several minutes, depending on the size of the partition. When complete, an icon representing the drive will appear on the desktop.

If you have created more than one A-Max partition, another requester will appear and the process will repeat itself until all partitions have been initialized.

If you are not asked to initialize the partition then either:

- (1) the appropriate A-Max driver is not present in the DEVS: directory;
- (2) the names you have given don't begin with AMAX;
- (3) the partitions weren't mounted before running A-Max II.

6.4 Making A-Max Partitions Bootable

After the first time the partitions have been initialized, they will be usable by A-Max II any time you run the program. Once set up, any one of the partitions can be made bootable by copying a **System folder** (containing both System and Finder files) into the partition. If more than one partition contains a System folder, A-Max II may boot from any one of them (but it will always boot from the same one). Experience has demonstrated that having more than one System folder can cause some programs to behave erratically. Users are cautioned against this practice. However, if you must have more than one copy of a System folder, any one of them can be made the "real" System by selecting its icon and following the Set Startup procedure detailed in the Macintosh system software manuals.

6.5 Technical description of the boot procedure

When A-Max II is run, it first opens all devices (such as the Mac SCSI manager, the floppy manager, RAM disk manager and the A-Max hard drive manager). Note that there is a difference between the Mac SCSI manager and the A-Max hard drive manager: The Mac SCSI manager will control hard drives that have been formatted on a Macintosh and other SCSI peripherals such as scanners and the LaserWriter SC while the A-Max hard drive manager will only control A-Max partitions on Amiga hard drives.

When the Mac system opens the A-Max hard drive manager, A-Max II installs all partitions beginning with the name AMAX but does nothing else (i.e.: it doesn't try to boot from any partition). When the Mac system opens the Mac SCSI manager, it reads block 0 from any SCSI devices (i.e.: each hard drive) and if it finds that a device was formatted on a Macintosh, it will load any necessary drivers from the device itself, set up the partition map and open the driver, which installs the partitions into the filing system.

Once all devices have been opened, the Mac system scans through the devices in the following order in search of a System and Finder:

- (1) Floppies;
- (2) RAM disk (if F1 was pressed);
- (3) A-Max hard drive partitions;
- (4) Mac SCSI hard drive partitions.

When a System and Finder are encountered, the system is booted from the device in which it is found.

6.6 Using SCSI Devices without A-Max Partitions

A potential problem exists if you intend to use a Macintosh formatted drive, SCSI scanner or LaserWriter SC attached to your controller card's SCSI port, but you don't have any A-Max partitions on other hard drives attached to the card. Without such partitions, A-Max II will not know which driver to use to access the hard drive card. To get around this, you must create a dummy entry in your mountlist that specifies the particular device driver used by your controller card (see above discussion).

To do this, copy the mountlist information for any AmigaDOS device that uses the controller card in question. Then, change the designator (example: DH2:) to **AMAXsomething**: The only information that matters for this dummy partition (besides the fact that its name must begin with AMAX) is the name of the driver in the "Device = " line in the mountlist. All the other entries can be set to zero (0). As long as this dummy partition is mounted before running A-Max II, A-Max will then know how to talk to your hard drive controller card and will allow the Mac SCSI manager to function.

Sample Dummy Mountlist Entry:
(NOT necessarily valid for your drive!)

```
AMAXCard: Device = SCSIDEV.device
Unit = 0
Flags = 0
surface = 0
BlocksPerTrack = 0
Reserved = 0
Interleave = 0
LowCyl = 0; HighCyl = 0
Buffers = 0
BufMemType = 0
```

6.7 A-Max Partitions Under AmigaDOS

Since you set up and name the A-Max partitions on your hard disk using the manufacturer's supplied utilities under the AmigaDOS operating system, these partitions are fully mountable and accessible when running in the normal AmigaDOS environment. As long as no attempt is made, under AmigaDOS, to use the A-Max partitions, your hard drives will behave normally. Since they are initialized as Macintosh drives under A-Max II, however, any attempt to access

these partitions from AmigaDOS will produce a "Not a DOS disk!" error message. It is best, therefore, only to mount the A-Max partitions when you intend to run A-Max II.

WARNING: It is possible to issue an AmigaDOS Format command that will reinitialize your A-Max partition and make it usable by the Amiga filing system. To do this would completely erase your A-Max format and any programs or data you had stored there.

7.0 SOFTWARE COMPATIBILITY

7.1 Compatibility with Macintosh Applications

As before, compatibility problems arise when software talks directly to the hardware, bypassing the operating system. This is most evident in MIDI software, copy-protected software, games and programs designed to use Mac hardware add-ons. Unfortunately there is nothing that can be done to allow these types of programs to run with A-Max II.

ReadySoft is working on a hardware solution to address these issues. It will be a plug-in board for the A2000 and higher machines. A-Max II Plus will offer support for MIDI hardware and software as well as a fully functional AppleTalk port.

Some applications still will not function with expansion memory present at all. The solution for such applications is to stop A-Max II from using your expansion memory by selecting the **No Expansion** option. Of course, the program must then be capable of running in 512k of space. If you find that a particular application will not run under A-Max II, you should always try reducing the memory size before giving up on that application.

7.2 What to Do if an Application Won't Run

Some Macintosh applications (particularly older ones) will refuse to run unless your A-Max II system is configured *exactly* like a standard Mac. If you encounter such a program, try the following:

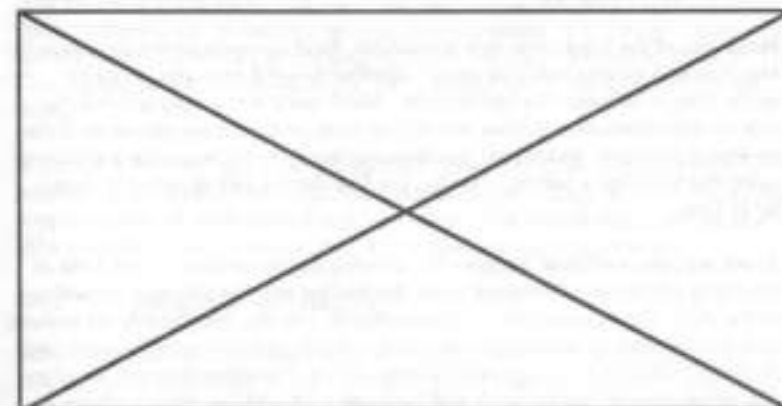
- 1) Set the screen size to 512 x 342 (standard Mac screen size)
- 2) Use the **MMU** setting (if you have a Memory Management Unit chip)
- 3) Use the **No \$C00000** memory setting
- 4) Use the **No Expansion** memory setting
- 5) Set the sound volume to zero (0) in the control panel Desk Accessory

8.0 FILE TRANSFER UTILITIES/AMIGADOS TO A-MAX II

8.1 File Transfer Software

A-Max II includes a new utility for transferring files back and forth between AmigaDOS and A-Max or Macintosh format disks. This program (File Transfer 2) replaces the File Transfer program found on the earlier A-Max release diskettes. File Transfer 2 is included on the Utilities disk (in the A-Max format half). In addition to simplifying the transfer process by eliminating the use of an intermediate disk format, File Transfer 2 also provides functions to convert different types of files during the transfer. File Transfer 2 now fully supports **MacBinary** file transfers.

File Transfer 2 works under A-Max II and produces the only instance when you can legally insert an AmigaDOS format disk. The only drive that can receive this disk is the internal or first drive (DF0:). In order to use File Transfer 2, you will need at least one other available disk drive (to hold the A-Max format disk). If you have an 800k Apple drive, you can use a real Macintosh format disk. If you don't have an Apple drive, but do have a second Amiga drive, you can use an A-Max format disk in this drive. If your system contains only one disk drive, you will have to install and initialize the A-Max RAM disk (by pressing F1) and use that as your second drive. Of course, if you are running your A-Max system with hard disk drives, these may also be used with File Transfer 2.



The File Transfer 2 selection screen.

Double click the **File Transfer 2** program icon to run it. Once the File Transfer 2 software is running, insert an AmigaDOS format disk into DF0:. If you are transferring data to A-Max II, the disk should already contain the files you wish to transfer; if you are transferring data from A-Max II to the Amiga, you should

be sure the disk has enough free space to hold the file(s).

WARNING: If you should insert the AmigaDOS disk before running File Transfer 2, the Mac system will report that the disk is not Macintosh and ask if you want to initialize or eject it. Initializing it will destroy the AmigaDOS formatting and make file transfer impossible. Eject the disk and be sure to start the File Transfer 2 program.

The File Transfer 2 program monitors any disk changes in DF0: and will display a directory of any AmigaDOS disk. You cannot proceed with the transfer until a valid AmigaDOS disk is in the internal drive.

When the program is running and a valid AmigaDOS disk has been accepted in the internal drive, you are ready to transfer files. Before selecting a file, however, choose one of the conversion types arrayed along the right side of the window.

Options include:

- (1) None;
- (2) Text;
- (3) MacPaint<->IFF;
- (4) MacBinary;
- (5) PostScript.

None copies the file without any translation. **Text** converts Amiga line feeds to Mac carriage returns and vice versa. **MacPaint<->IFF** converts single bit plane images between the two formats. **MacBinary** is the most common format for Macintosh executables and is how most programs are stored on Bulletin Board Systems. Macintosh files downloaded from BBSs can be transferred using the MacBinary setting. Finally, the **PostScript** setting converts Post-script files.

There are also additional gadgets for selecting particular elements of a file or providing additional information about the file that will make it more appealing to the Mac. These tools have to do specifically with the Macintosh's file system and are included for advanced users who need to port their work between both AmigaDOS and Macintosh environments. Users interested in simply transferring an occasional text file back and forth need not address these gadgets at all. They will default to appropriate values.

Fork selection — Macintosh files are composed of two halves, called *forks*. Every file has both a **Resource** and a **Data Fork**. Programs will usually have their executable code in the resource fork and changeable elements (like fonts, dialog boxes, and windows) in the data fork. Among other things, this makes it

easy to translate the program into other languages; French or Russian menus can be loaded into the data fork without having to change the actual program code.

Many files will have contents in the data fork but none in the resource fork (or vice versa). The Fork Selection gadget allows you to extract the contents of either or both forks of a Macintosh file. When copying from the Amiga, you may wish to specify that your data be copied to one or the other forks in the destination Mac file.

File Type and File Creator — Every Macintosh file also has a **File Type** and a **File Creator** data field. This is information that functions basically the same way as AmigaDOS's .info files. The file type is a four character notation that specifies what kind of information it contains: TEXT, APPL, PICT, etc. The file creator is a four character abbreviation of the name of the program that created it: WRIT, FPNT, etc.

To enter a File Type or File Creator, click in the appropriate string gadget and type the identifier. Again, if you don't know what abbreviations to use, or do not care to specify any, the default values will do.

8.1.1 Copying AmigaDOS->Mac

Use the **Parent** and **Root** gadgets or double-click on directory names to move through directories. Select the file you wish to transfer by scrolling through the list of filenames and then single-clicking on the name (it will be highlighted). The current path is displayed above the directory list. Click on **From AmigaDOS**.

A standard Mac file requester will appear. Select the drive and, optionally, any subdirectories to which you want the destination file copied. If you choose, you may also give the destination file a new name. The file will inherit the source file's name if you don't change it. Click on **Save** to begin the transfer.

8.1.2 Copying Mac->AmigaDOS

Select a destination directory on the AmigaDOS disk in DF0: to receive the Mac file (a file name can be supplied but it won't have any effect — only the directory is used). Click on **To AmigaDOS**.

A standard Mac file requester appears. Select the file that you wish to copy. Click on **Open**. The file is then transferred to the AmigaDOS disk with the same file name. If a file by that name already exists, you will be prompted to **Cancel** the operation or **Overwrite** the file.